

WHAT IS CLAIMED IS:

1. A 4-lead full-color light emitting device comprising:  
first through third sub-lead frames respectively having  
5 first through third leads each made of a conductive material,  
and wire bonding pads each formed at one end of an associated  
one of the first through third leads;  
a main lead frame having a fourth lead made of a  
conductive material, and a reflecting cup formed at one end of  
10 the fourth lead while having a side wall and a bottom surface,  
the reflecting cup being formed with a reflecting surface at an  
inner surface of the side wall while having, at the bottom  
surface, an insulating portion, and a non-insulating portion  
electrically connected to the fourth lead; and  
15 first through third light emitting diodes (LEDs) of  
different light emitting wavelengths mounted on the bottom  
surface of the reflecting cup in the main lead frame, each of  
the LEDs having first and second electrodes of different  
characteristics;  
20 wherein the first electrode of the first LED and the  
first electrode of the second LED are commonly electrically  
connected to the first lead of the first sub-lead frame;  
wherein the second electrode of the second LED and the  
first electrode of the third LED are commonly electrically  
25 connected to the second lead of the second sub-lead frame;

wherein the second electrode of the first LED is electrically connected to the fourth lead of the main lead frame; and

5 wherein the second electrode of the third LED is electrically connected to the third lead of the third sub-lead frame.

10 2. The 4-lead full-color light emitting device according to claim 1, wherein the electrical connection of the second electrode of the first LED to the third lead of the main lead frame is achieved by die-bonding the second electrode of the first LED to the bottom surface of the reflecting cup in the main lead frame, using a conductive bonding agent.

15 3. The 4-lead full-color light emitting device according to claim 1, wherein the electrode-to-lead electrical connection of the first through third LEDs to the first through third sub-lead frames is achieved in accordance with a wire-bonding method.

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4. The 4-lead full-color light emitting device according to claim 1, wherein the mounting of the second and third LEDs to the main lead frame is achieved by die-bonding the second and third LEDs to the bottom surface of the reflecting cup in the main lead frame, using a non-conductive bonding agent.

5. The 4-lead full-color light emitting device according to claim 1, wherein the bottom surface of the reflecting cup in the main lead frame has a circular or oval shape.

5 6. The 4-lead full-color light emitting device according to claim 1, wherein the first LED is adapted to emit light of a red wavelength, the second LED is adapted to emit light of a green wavelength, and the third LED is adapted to emit light of a blue wavelength.

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7. A 4-lead full-color light emitting device comprising: first through light emitting diodes (LEDs) of different light emission wavelengths, each of the LEDs having first and second electrodes;

15 a first lead connected to respective first electrodes of the first and second LEDs, and adapted to apply a first control voltage to the first electrodes of the first and second LEDs;

20 a second lead connected to both the second electrode of the second LED and the first electrode of the third LED, and adapted to apply a second control voltage to the second electrode of the second LED and the first electrode of the third LED;

25 a third lead connected to the second electrode of the third LED, and adapted to apply a third control voltage to the second electrode of the third LED; and

a fourth lead connected to the second electrode of the first LED, and adapted to apply a fourth control voltage to the second electrode of the first LED.